

ABSTRACT OF THE DISCLOSURE

A method and system for producing hydrogen from solid carbon materials and feed water are disclosed as including an arc plasma reactor (APR) which has arc discharge electrodes and a large number of minute arc passages (35) formed in the solid carbon materials filled in the plasma reactor. Feed water is converted into steam in the plasma reactor and the steam is fed through the minute arc passages in which steam reacts with the solid carbon materials in the presence of arc plasmas to produce hydrogen rich gas.